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TRAINING FOR RESEARCH UTILIZATION.
BY- MILES, MATTHEW B.

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PLANNING IS NEEDED TO BEST UTILIZE EDUCATIONAL RESEARCH. EFFORT IS REQUIRED FOR THE MASTERY OF RESEARCH UTILIZATION PROCESSES FOR TWO BASIC POPULATIONS--(1) THE UTILIZATION SPECIALIST SITED IN FIELD SETTINGS AND (2) THE NEW RESEARCHER AS HE MOVES THROUGH HIS GRADUATE TRAINING. THE FOLLOWING RESEARCH-RELATED SPECIALIST ROLES ARE PRESENTLY UNDERCONCEPTUALIZED AND UNDERMANNED--(1) THE EDUCATIONAL DEVELOPMENT SPECIALIST, (2) THE FIELD TESTER, (3) THE QUALITY CONTROL MAN (ASSESSOR OF INSTALLED EDUCATIONAL PRACTICES), (4) THE CHANGE AGENT OR CATALYST, AND (5) THE COUNTY AGENT (STYLED AFTER AGRICULTURAL LINKAGE). GRADUATE STUDENTS ARE NOT BEING PROPERLY TRAINED IN SUCH ROLE BEHAVIORS AS (1) CONSTRUCTION OF DATA-COLLECTION TOOLS FOR PRACTITIONER USE, (2) SITUATION-FOCUSED INFORMATION RETRIEVAL, (3) DIAGNOSTIC RESEARCH AND FEEDBACK, (4) SELF-STUDY FACILITATION (RESEARCH BY THE EDUCATOR ON HIS OWN SYSTEM), (5) TRAINING FOR RESEARCH UTILIZATION, AND (6) FACILITATION OF THE DIFFUSION OF PRACTICES (DISSEMINATION OF INNOVATION). GRADUATE EDUCATION IN THE FUTURE WILL HAVE TO INVOLVE FIELD RESEARCH AND CLEAR CONCEPTUALIZATION OF RESEARCH UTILIZATION PROCESSES WITHIN EDUCATIONAL SYSTEMS. THIS PAPER WAS PREPARED FOR THE AERA/PDK JOINT STUDY GROUP ON THE TRAINING OF RESEARCH WORKERS FOR EDUCATION. (GB)

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Training for Research Utilization*

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Matthew B. Miles
Teachers College, Columbia University

We already have a shortage of educational research and development personnel--and the needs are growing. Over the next few years, we can undoubtedly expect continually increasing involvement of university researchers from the various disciplines seen as foundational to education. Private industry, the R & D centers, the regional laboratories, inter-school system consortia, local school systems, state departments of education, supplementary education centers--and as yet unconceived structures--will all be vigorously engaging in activities from "basic" research to engineering to field testing to teacher training and diffusion. It is entirely possible that the bulk of the operatives in the educational side of the knowledge industry will be developers, evaluators, diffusers, and support personnel. Such personnel--and the research personnel whose work connects with theirs--can be left to their own devices, in which case the utilization of educational research will be about as haphazard and infrequent as it is now. Or, planning can begin now for efforts at improving the network of roles for the utilization of educational research. If it does, the possibility exists that educational research and practice might be radically benefited, just as American agriculture was transformed by changes in the knowledge utilization structure.

It has occasionally been suggested that there are, after all, very few solid generalizations about teaching, learning, and the educational enterprise anyway, and that all hands should turn to and make a solid corpus of "basic" knowledge before efforts at engineering, evaluation and dissemination occur. The quality of much existing educational

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research <u>is</u> poor (non-programmatic, non-cumulative, non-informed by fundamental notions from assorted disciplines, non-connected with "user demands" in school settings in any meaningful way). However, no law requires that improving knowledge utilization roles and processes must necessarily dilute the quality of basic inquiry carried on in education. In fact, quite the opposite outcome seems likely, as interaction and feedback between researchers of basic and applied bents, engineers, demonstrators and practitioners becomes more frequent and more work-oriented.

The position taken here is that effort needs to be devoted to mastery of research utilization processes and skills for two basic populations: the utilization specialist sited in a wide variety of field settings; and the budding researcher as he moves through his graduate training.

Training the Research Utilization Specialist

In general, it seems unrealistic to expect most potential occupants of the status <u>researcher</u> to be "wide-span" people, equally at home in the research laboratory, the classroom, the materials production center, and the administrative office. A few such people do exist on the national scene, but they are rare, and their lives are complex and difficult. A basic researcher who (for example) decides to develop educational practices based on his findings, to try them out in schools, to teach teachers to use them, and to evaluate the results, usually finds himself attacked on all fronts; he has violated norms controlling role behavior in each of the statuses he has occupied. Thus curriculum specialists criticize him because he has "no coherent curriculum philosophy"; basic researchers criticize him for being "applied"; and superintendents criticize him for "not understanding the realities of the school business." It takes great intelligence,

personal flexibility, and a quasi-fanatical sense of purpose to be a wide-span man. Most people's possession of these qualities is moderate. Thus it seems more sensible to divide up functions along the research-to-practice continuum, and concentrate on training people to perform them (as well as to link more effectively with people who are performing adjacent functions).

A number of research-related specialist roles seem at the moment to be under-conceptualized, and under-filled with capable people. Some young researchers--and some old ones--have moved into such roles, in the R & D centers, on special curriculum projects, in local or country school systems. These include:

1. The <u>educational development specialist</u>. Few such people now exist; the role behaviors involved are essentially engineering ones--the design of educational practices, with supporting materials and equipment, drawing both on available general knowledge ("basic research") and knowledge about user demands and requirements. Much educational design at present is done haphazardly, or on the basis of dubious "lore," or is encumbered by ideological biases (not the least of which is that "engineering" is somehow suspect when one is talking about teaching and learning).*

A sub-specialization of this role could be called the <u>retriever-converter</u>; the role behaviors are primarily those of scanning the literature of research and practice, and codifying it in a fashion which permits easy access for the purpose of "translating" or "converting" knowledge into workable prototype programs in schools and universities, to meet identified needs.

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*As engineering educators are pointing out currently, good engineering capability requires fundamental knowledge in basic disciplines, a creative design sense, and a generalist capacity to understand and integrate user requirements. In education, however, there is a persistent tendency to assume that "engineering" requires no special skill--and to believe that educational changes "ought" to occur via a majestic trickle-down flow from founts of "basic knowledge." In point of fact, the vast proportion of technological development work starts, not from <u>a</u> basic bit of knowledge which is then translated, but from a <u>problem</u>, around which a wide variety of information must be retrieved and organized.

2. The field tester, whose main responsibility is assessing the workability, consequences, and feasibility of a particular educational innovation, usually in a preliminary or pilot stage. The few existing field testers have been attached to such organizations as ETS, ESI, the national curriculum groups, and some commercial publishers. Unfortunately, innovative zeal has often had more influence on the characteristics of proposed innovations than have hard data about how they actually work out in practice, freed of placebo effects and Messianic claims.

3. The quality control man. The chief role behaviors here center around the routine assessment of the consequences of educational practices, once installed and in regular use. Large-city research directors often occupy this status in principle; in practice they are severely hampered by the pressure of administrative data-collection demands; by the resistence to evaluation of performance which occurs in education, as in all people-processing professions; and (not least) by the absence of easily-administrable, valid and reliable measuring instruments, which become more and more needed as new teaching aims and curricula proliferate.

4. The change agent or "catalyst." This role is more talked about than occupied at the moment. Needed role behaviors include aiding school system occupants with strategy planning and the installation of change-planning mechanisms, and the design of needed in-service programs at the diffusion/implementation stage. Such change agents may be externally located (as in the case of some university-based "service" personnel, educational consulting firm members, and persons employed by trans-school system consortia), or directly employed by and sited in local school districts. Industrial experience with "organization development" and "employee relations" departments suggests that internal change agents

can be effective, if (a) they have adequate connection to behavioral science resources, and (b) they report to the highest level of the organization.

5. The county agent. Though agriculture is an imperfect (and seductive) model for education, it seems likely that a suitably transformed "county agent" role would be useful. The role behaviors are those of interpreting research findings to potential user groups; the encouragement and facilitation of pilot testing of practices known to be efficacious; diffusion of pilot test results via demonstrations and visits, to increase the proportion of adopters in the immediate area.* Prototype "county agents" are now beginning to appear in R & D centers, and will probably do so in the regional laboratories as well; some state departments are starting to staff similar positions.

Utilization specialists, if they are to be effective, must have a substantial part of their training in university settings. But internships, and intensive field work seem crucial in roles which serve linking, developmental functions in the knowledge flow. Not the least problem is that of building a sense of community among such specialists, in the absence of a strong, common disciplinary base. Intensive summer institutes and post-doctoral programs like those sponsored by National Training Laboratories for university- and industry-based change agents seem indicated.

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*While we are analogizing, the "home demonstration agent" might be converted to educational settings as well; the role exists to aid diffusion through teaching, in-service education and consulting activity.

Training the Researcher

If the world of educational R & D projected earlier is accurate, it will also be true that any new educational researcher, whether he is associated with a university, a local school system, a state department of education, a consulting firm, an industrial organization, a research institute, a research and development center, or a temporarily-existing project, and whether he thinks of himself as basic" or "applied" in intent, may find himself called on to perform a number of knowledge-utilization role behaviors. Depending on the division of labor in the emerging educational research and development establishment, he may or may not have to carry these out himself. It does seem clear, though, that educational researchers of today, as now trained, are not particularly competent at role behaviors like these:

1. Construction of data-collection tools for practitioner use. Most reserachers give little attention to building instruments which teachers and administrators can themselves use to diagnose local situations, and/or measure changes. Research using such instruments would presumably have a high probability of being utilized.

2. Situation-focused information retrieval. Most researchers are accustomed to the "literature search " as an early (and not very interesting) phase in a product. Few have given attention to the retrieval (and information-organization) needs which practitioners in a particular problem situation are facing. Yet it is in such situations that high readiness for research utilization exists--provided that available information can be effectively retrieved, organized in a useful fashion, and connected to the demands of the local situation.

3. Diagnostic research and feedback. The collection of data about a particular problem situation is a more familiar activity for most researchers. However, defining variables at the start which will maximize utilization of results, collaborating effectively with the practitioners

involved, and designing a feedback mechanism which will be maximally useful to the client system--all seem to be skills which need more practicing.

4. Self-study facilitation. Most researchers have little or no experience in guiding members of a system to carry out research on aspects of their own system. Local participants need training in designing studies, collecting and processing data, and feeding back the results in an action-encouraging manner. Historically, the "action research" movement in education had this intent, but it seems to have withered amid mutterings about the "quality" of research resulting. It does seem, however, that we need not be bound to the choice between "rigorous" research which goes unutilized and "sloppy" research which (somehow) inspires the practitioner to improved practice.

5. Training for research utilization. Most of the role behaviors above, if carried out well, will implicitly train the research user to do a better job of using available knowledge. However, it seems likely that explicit attention, via planned training experiences, should be given by researchers to the development of such practitioner skills as: how to read a research report, how to derive specific implications for action from it, how to design practical local replications of studies, and how to use available researcher resources in a collaborative (non-dependent, non-hostile) way. Some researchers, in and out of schools of education, have developed useful training experiences designed to accomplish such outcomes. These could be diffused more widely, and others should be invented and tested as well.

6. Facilitation of the diffusion of practices. Some sound, well-researched educational innovations appear not to diffuse well across system boundaries; they are poorly documented and explained, or advocated

without provision of needed technical support and materials. Assuming that adequate feasibility testing has occurred, there seems to be a useful (and rarely-played) role for the researcher: aiding with the systematic description of innovations (essential features, specification of needed skills, discussion of usual traps or types of failure involved, evidence on efficacy, indications and contra-indications for use) in such a way that the amount of de novo work on frequently-encountered problems of educational practice can be minimized.

How to train for such role behaviors? Graduate education will probably have to include, not only some involvement with field research (and research utilization) sites, but some clear conceptualization of research utilization processes in educational systems. (The direct stimulation of research on research utilization itself* also seems desirable.)

Beyond this, as university-linked R & D centers, regional laboratories, and ETS-like organizations multiply and develop, there will be available more and more role models for young researchers to emulate. Post-doctoral posts in such settings, (plus post-doctoral summer institutes) would be very useful. It seems undeniable that, just as research skills are best learned by doing research, research utilization skills are likely best learned by doing research utilization.

As in the case of more familiar aspects of research training, a crucial issue remains: what strategies of organization and approach in university departments are likely to be most productive? This is far from clear, but if research utilization training--for researchers or research-related personnel--is ignored by the universities; we can

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*As at the University of Michigan's Center for Research on the Utilization of Scientific Knowledge currently.

probably expect increasing disjunction between knowledge-producers and users, with less likelihood of coherent development in either educational practice or theory.

One final comment. Data on researchers in schools of education show very clearly that "service" activities have historically been rewarded, and engaged in, more frequently than the production of research. The natural tendency is, therefore, to press for improved research training: a goal which seems undeniably crucial. However, as suggested at the start of this paper, drastically improved attention to the quality of preparation for research utilization roles also seems indicated--and can have useful back effects on research training itself. We need not choose between these goals.